THE MINISTER OF STATE IN THE PRIME MINISTER'S OFFICE AND MINISTER OF STATE IN THE DEPARTMENTS OF ATOMIC ENERGY, SPACE AND MINISTRY OF SCIENCE AND TECHNOLOGY (SHRI BHUVNESH CHATURVEDI) : (a) No such technology has been developed by the said Scientist of National Geophysical Research Institute, Hyderabad.

(b) and (c) Do not arise.

Post-Earthquake tremors in Latur

1528. DR. BAPU KALDATE : Will the PRIME MINISTER be pleased to state :

(a) how many times tremors—both mild and severe—were recorded in the region after the recent devastating earthquake in Latur (Maharashtra);

(b) whether any loss of life and property was caused as a consequence thereof; and

(c) if so, the details thereof ?

THE MINISTER OF STATE IN PRIME MINISTER'S OFFICE AND MINISTER OF STATE IN THE DEPARTMENTS OF ATOMIC ENERGY, SPACE AND IN THE MINISTRY OF SCIENCE AND TECHNOLOGY(SHRI BHUVNESH CHATURVEDI): (a) A total of 173 aftershocks have been recorded in Latur till 22-2-94 by temporary Seismic network established in the region soon after the earthquake. Out of them, 171 were mild and 2 were of moderate strength. There was no severe earthquake.

(b) and (c) According to Press Reports only one person died due to stampede caused by panic.

Raising investments in the field of Science and technology

1529. SHRI KRISHNA KUMAR BIRLA : Will the PRIME MINISTER be pleased to state :

(a) whether the Indian Science Congress Association has urged Government to raise the investment in the field of Science and Technology;

(b) if so, the reaction of Government thereto;

(c) whether it is also a fact that Government are laging behind in the field of science and technology; and

(d) what other steps Government propose to take to come forward in the fields of science nd, technology *1*

THE MINISTER OF STATE IN PRIME MINISTER'S OFFICE AND MINISTER OF STATE IN THE DEPARTMENTS OF ATOMIC ENERGY, SPACE AND IN THE MINISTRY OF SCIENCE AND TECHNOLOGYKSHRIjBHUVNESH CHATURVEDI). (a) to (d) The Indian Science Congress was held in Jaipur between 3—8 January, 1994 under the auspices of the Indian Science Congress Association (ISCA). The recommendations of the Science Congress Sessions are presently at the drafting stage and have not yet been received by the Government of India! as per the normal practice, ISCA sends the final recommendations to the Government which, in turn, further process them through the Inter-ministerial Task Force constituted for the purpose for taking appropriate action by the concerned Departments/Agencies.

The salient aspects of the action taken by Government are also reported in the next Session of the Science Congress through the release of the Task Force Report followed by a Session thereon.

Underground Nuclear Explosion behind Latur earthquake

1530. SHRI KRISHNA KUMAR BIRLA Will the PRIME MINISTER be pleased to state :

(a) whether it is a fact that according to scientific study conducted by a group of scientists, the recent earthquake in Latur (Maharashtra) v.as due to an underground nuclear explosion;

(b) if so what are the details of the study conducted by the scientists stating the base of which the conclusion has been arrived at;

(c) what is the reaction of Government with regard thereto; and

(d) the steps Government propose to take to predict earthquake ?

iiTHE MINISTER OF STATE IN PRIME MINISTER'S OFFICE AND MINISTER OF STATE IN THE DEPARTMENTS OF ATOMIC ENERGY, SPACE AND IN THE MINISTRY OF SCIENCE AND TECHNO. LOGY (SHRI BHUVNESH-CHATURVEDI) (a) According to Press Reports, scientists from Delhi and Shivaji Universities have made this conclusion from their' studies,

(b) As per the news items, scientists from the above universities made observations on radioactivity and ground temperature in the affected area, in addition, their conclusion is (based on the reported itching of eyes and "burn injuries".

(c) The conclusion of these scientists does not seem acceptable. Increase of ground temperature and radio activity often takes place due to geological causes. For example, release of sub-terranean geothermal energy and emanation of natural radioactive gases like radon due to rupture of underground rocks causes temporary increase in surface tempera ture and radio activity. Earthquakes take place due to tectonic reasons without being related to remote or nearby nuclear explosions.

It is known that only small earthquakes (around magnitude *4)* can be caused by nuclear explosions conducted underground and the earthquakes so generated are confined to a localised area. It is evidenced by the data collected over years from the underground nuclear experiments conducted at Navada, Western United States and Central Aisan Region of the former Soviet Union.

Latur earthquake of 30-9-93, had a magnitude of 6.3. The aftershock sequence recorded by the local network established in the area is typical of a natural event.

(d) Action is being taken to upgrade and strengthen Seismological network in the country for better detection and lecationa) capabilities and earthquake hazard risk assessment. The status of current knowledge the world over is that earthquakes cannot be predicted.

Posf earthquake measures taken by Government

1531. SHRI GOVINDRAO ADIK : Will the PRIME MINISTER be pleased to state :

(a) whether it is a fact that Government propose to instal the sophisticated equipment for seismic study in the quake hit Latur district of Maharashtra to study the after effects of thp devastating tremors and for this purpose a Cabinet Committee has been set up to provide poBcy directives and approved integrated programmes;

(b) if so, the details thereof; and

(c) what further measures Government have so far taken or propose to take in this regard to prevent tremors and evert panic which might lead to a large scale migration of people from the quake hit areas ?

THE MINISTER OF STATE IN PRIME MINISTER'S OFFICE AND MINISTRY OF STATE IN THE DEPARTMENTS OF ATOMIC ENERGY, SPACE AND IN THE MINISTRY OF SCIENCE AND TECHNO LOGY (SHRI BHUVNESH CHATURVEDI): (a) Sensitive seismic equipments have been installed in the Latur Osmanabad area of Maharashtra to study the after shock activity in the area.

(b) Soon after the devastating earthquake on September 30, 1993 network of temporary seismic observatories was set up in Latur Osmanabad area of Maharashtra to monitor aftershock activity. A seismic observatory was commissioned on December 20, 1993 at Latur. The observatories are still functioning

(c) A Comprehensive Mission Mode Project has been formulated by the Department of Science and Technology for intensive seismic study of Peninsular India. Such study will lead to better understanding of the seismic characteristics of the area. Meanwhile, a massive rebuilding programme has been taken up for the area. For generating greater public awareness, Posters and Weekly bulletins covering earthquake hazard and general health were issued to allay panic among public and to ensure better disaster preparadeness.

Solar Power Station in space

1532. SHRI BHUPiNDER SINGH MANN : Will the PRIME MINISTER be pleased to state :

(a) whether Government are exploring the possiblities of installing solar power stations in space in future; and

(b) if so, the details thereof ?

THE MINISTER OF STATE IN THE PRIME MINISTER'S OFFICE AND MINISTER OF STATE IN THE MINISTRY OF SCIENCE AND TECHNOLOGY AND MINISTER OF STATE IN THE DEPARTMENTS OF ATOMIC ENERGY AND SPACE (SHRI BHUVNESH CHATURVEDI):

(a) No, Sir.